PERFORMANCE SERIES SUBWOOFERS

KW10
KW12

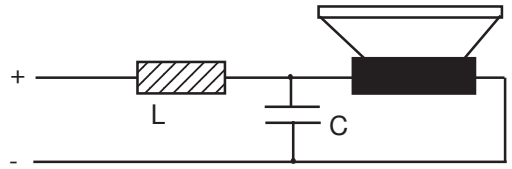
WELCOME

Thank you for buying a DLS Performance series subwoofer.
The subwoofer must be installed correctly in order to work well. This manual will show you how to install it like a pro. Please read the entire manual before beginning the installation.
Install the subwoofer yourself if you feel confident with our instructions and if you have the proper tools. However if you feel unsure, turn over the installation job to someone better suited to it.
The speakers are designed for enclosure mounting. When installed "open air" the power handling capacity is reduced with 30% from the nominal value. We dont recommend ”open air” installations.

CONNECTION OF SUBWOOFER

How to connect depends on what type of amplifier you use. The best is to follow the instructions given in the manual for the amplifier. Most amplifiers today have built-in lowpass crossover and possibilities to connect your subwoofer in bridge mode.
Two 4 ohm subwoofers are often connected in stereo mode since most amplifiers can´t handle bridge mode loads below 4 ohms. If you have a DLS Ultimate amplifier it´s possible to connect two 4 ohm subs in bridge mode, these ampliers are 1 ohm stable.
We also recommend the use of a subsonic highpass filter. This gives a better bass reproduction with less "rumble". In most DLS amplifiers this feature is already built-in.
For wiring use high class speaker wires, min AWG13 (2.5 mm^2). For example **DLS SC 2x2,5.**

If you have an amplifier without built-in crossover you must use a passive crossover between amplifier and subwoofer like in this example:



Connected with a 12 dB passive low-pass x-over = 10 mH coil in series and a bipolar capacitor of 300 microFarad in parallel. Crossover frequency is 95 Hz.

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SUBWOOFER ENCLOSURES, GENERAL

Build your enclosure in a stable and airtight material. The best is MDF-board, 19 mm, or particle board, 22 mm. Larger enclosures must have bracing inside to avoid vibrations. The enclosure must be completely airtight. Use sealing compound in all joints, also around the cable terminals. The size of the enclosure is decided by the speaker data.

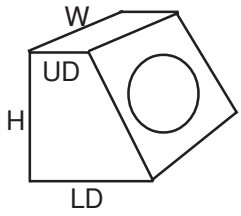
SEALED ENCLOSURES

Sealed enclosures are easy to build. The size is not critical, but it can´t be too small. The speaker data such as Fs, Qts, Vas and X-max decides the size of the enclosure.
Large speakers need larger boxes. Two speakers need a box of the double size etc. The enclosure must be completely airtight. A sealed enclosure should be filled with acoustic wool up to 75 - 100%.
A sealed enclosure has a lower efficiency than vented enclosures but they can handle high power and is easy to build. A subwoofer in a sealed enclosure creates a tight bass suitable for the audiophiles listening to classical music, jazz and soft rock. KW10 and KW12 are designed for use in sealed enclosures.

CALCULATE YOUR ENCLOSURE VOLUME

When caculating the volume of an enclosure you simply multiply the width (W) x heigth (H) x depth (D).
Use measures in dm and you will get the answer in liters.
A trapezoid box is calulated as below:

$$\text{Vol} = \text{width (W)} \times \text{heigth (H)} \times \frac{\text{upper depth(UD)} + \text{lower depth(LD)}}{2}$$



Be sure to measure the inside dimensions.

WARRANTY SERVICE

This speaker is covered by warranty, depending on the conditions in the country where it is sold. If the speaker is returned for service, please include the original dated receipt with the product.

Technical Assistance

For technical assistance ask the shop where the product was sold or the distributor in your very country.You can always phone the DLS Helpdesk in Sweden + 46 31 840060 or send an e-mail to info@dls.e
Information can also be found on our WEB-site www.dls.se
We follow a policy of continuous advancement in development. For this reason all or part of specifications & designs may be changed without prior notice.

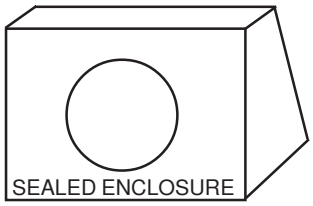
TECHNICAL SPECIFICATIONS FOR DLS SUBWOOFERS

	KW10	KW12
Size	25 cm (10")	30 cm (12")
Impedance	4 ohm	4 ohm
Nom. power (RMS)	200 W (max 400)	250 W (max 400)
Freq. range	25 Hz - 2 kHz	20 Hz - 2 kHz
Sensitivity	89,2 dB	91,3 dB
Voice coil diameter	50 mm (2")	50 mm (2")
Re	3,2 ohm	3,2 ohm
Voice coil inductance, 1 kHz	1,87 mH	1,86 mH
BL product	9,9	9,75
X-max	+-9 mm (0,35")	+-9 mm (0,35")
Suspension compliance CMS	243	336
SD- Effective piston area	363 cm^2	491 cm^2
Resonant freq. (Fs)	37 Hz	33 Hz
Vas (liters)	50	113
Vas (ft^3)	1,77	4,00
Qms	5,28	3,57
Qes	0,58	0,48
Qts	0,53	0,42
Cone material	Paper	Paper
Magnet weight	30 oz	30 oz
Magnet diameter	4,72" (120 mm)	4,72" (120 mm)
Installation depth	4,57" (116 mm)	5,24" (133 mm)
Mounting hole	9,29" (236 mm)	10,94" (278 mm)
Outer diameter	10,51" (267 mm)	12,12" (310 mm)
Weigth	6,39 lb (2,9 kg)	8,82 lb (4 kg)

RUNNING-IN PERIOD

Allow the speaker to play for at least 15-20 hours. After this time the performance is correct.

RECOMMENDED SEALED ENCLOSURES FOR KW10 & KW12



Subwoofer	Volume (liters/ft3)	Damping
KW10	vol: 20-25 / 0,71-0,88*	Wool
KW12	vol: 26-30 / 0,92-1,06*	Wool

*Use the smaller volume for more ”kick” in the bass, the larger volume for more deep HiFi bass.

ENCLOSURE PLACING IN DIFFERENT TYPES OF VEHICLES

In **small vehicles** like VW Golf, Peugeot 306 and similar the bass box should be installed with both speaker and port directed backwards. Alternatively booth speaker and port can be directed upwards. This way of mounting is valid for all types of vehicles where the trunk is incorporated with the inner compartment.

In **sedan vehicles** with the passenger compartment separated from the trunk, the enclosure should be installed with booth speaker and port directed towards the rear seat. Some cars have an opening in the middle of the rear seat for loading skis etc. You can install the enclosure behind this opening and direct your speaker through this opening.

In **large vehicles** like station wagons the best sound is achieved with the enclosure installed behind the rear seat with booth speaker and port directed backwards. Alternatively you can install the enclosure on one side of the luggage compartment.

ABOUT THE RECOMMENDED ENCLOSURES

The performance of these recommended enclosures will vay from vehicle to vehicle. It is more difficult to get a tight and well defined bass in a SEDAN vehicle because of the tightness between trunk and interior of the vehicle.

- All volumes are inside measures.
- Volumes occupied by speaker and ports have already been added to the given enclosure volumes.
- The enclosure must be very steady and completely air-tight. Use 22 mm particle board or 19 mm MDF-board. The particle board has a self resonant frequency of 14 Hz while the MDF has a resonant frequency of approx. 400 Hz. It´s important to do some type of bracing inside the enclosure to avoid vibrations.

Volume taken up by bracing should be added to the enclosure volumes.

ENCLOSURE DAMPING

Most enclosures should be damped inside with syntetic (acoustic) wool or damping mat (line). Attach the damping material on the wall opposite from the speaker and port. A sealed enclosure should be filled up to 70-100% with acoustic wool.